```
ISIS-II MCS-86 MACRO ASSEMBLER V2.1 ASSEMBLY OF MODULE SCD86A
OBJECT MODULE PLACED IN :F0:SCD86A.OBJ
ASSEMBLER INVOKED BY:  :F0: SCD86A.A86 DEBUG XREF


LOC  OBJ                  LINE     SOURCE

                            1      ;
                            2      ;       CP/M-86  /  MP/M-86   Interface Routine
                            3      ;
                            4      ;       Jumps to PLM label
                            5      ;       Interface for PLM-86 with separate code and data
                            6      ;       Standard patch area, date, version & serial no. location
                            7      ;       Code org'd at 0
                            8      ;       February 1, 1982
                            9
                           10
                           11      dgroup  group   dats,stack
                           12      cgroup  group   code
                           13
                           14      assume  cs:cgroup, ds:dgroup, ss:dgroup
                           15
----                       16      stack   segment word stack 'STACK'
0000                       17      stack_base      label byte
----                       18      stack   ends
                           19
----                       20      dats     segment para public 'DATA'    ;CP/M page 0 - LOC86'd at 0H
                           21
                           22      ;       Memory size
0006                       23              org     6
0006 ????                  24      maxb    dw      ?
  0006                     25      memsiz  equ     maxb
                           26      ;       MP/M-86 only
0050                       27              org     50h
0050 ??                    28      cmdrv   db      ?
0051 ????                  29      pass0   dw      ?
0053 ??                    30      len0    db      ?
0054 ????                  31      pass1   dw      ?
0056 ??                    32      len1    db      ?
                           33      ;       Default FCBs & buffer
005C                       34              org     5ch
005C (16                   35      fcb     db      16 dup (?)
     ??
     )
  005C                     36      fcba    equ     fcb
  005C                     37      sfcb    equ     fcb
  005C                     38      ifcb    equ     fcb
  005C                     39      ifcba   equ     fcb
006C ??                    40      fcb16   db      ?
006D ??                    41      dolla   db      ?
006E (14                   42      parma   db      14 dup (?)
     ??
     )
007C ??                    43      cr      db      ?
007D ????                  44      rr      dw      ?
  007D                     45      rreca   equ     rr
007F ??                    46      ro      db      ?
```

CP/M-86 v.1.1 (Vol. II)
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```
LOC  OBJ                  LINE     SOURCE

  007F                      47     rreco   equ     ro
0080 (128                   48     buff    db      128 dup (?)
     ??
     )
  0080                      49     tbuff   equ     buff
  0080                      50     buffa   equ     buff
                            51     ;       Cpu type
  0001                      52     cpu     equ     1       ; 0 = 8080, 1 = 8086/88, 2 = 68000
                            53
                            54             public  maxb,memsiz
                            55             public  cmdrv,pass0,len0,pass1,len1
                            56             public  fcb,fcba,sfcb,ifcb,ifcba,fcb16
                            57             public  cr,rr,rreca,ro,rreco,dalla,parma
                            58             public  buff,tbuff,buffa, cpu
                            59
----                        60     dats ends
                            61
                            62
----                        63     code    segment public  'CODE'
                            64     public  xdos,mon1,mon2,mon3,mon4
                            65     extrn   plm:near
                            66
0000                        67             org     0h              ; for separate code and data
0000 9C                     68             pushf
0001 58                     69             pop     ax
0002 FA                     70             cli
0003 8CD9                   71             mov     cx,ds
0005 8ED1                   72             mov     ss,cx
0007 BD260000         R     73             lea     sp,stack_base
000B 50                     74             push    ax
000C 9D                     75             popf
000D E90000           E     76             jmp     plm
                            77
                            78
0010                        79     xdos    proc
0010 55                     80             push    bp
0011 8BEC                   81             mov     bp,sp
0013 8B5604                 82             mov     dx,[bp+4]
0016 8B4E06                 83             mov     cx,[bp+6]
0019 CDE0                   84             int     224
001B 5D                     85             pop     bp
001C C20400                 86             ret     4
                            87     xdos    endp
                            88
  0010                      89     mon1    equ     xdos            ; no returned value
  0010                      90     mon2    equ     xdos            ; returns byte in AL
  0010                      91     mon3    equ     xdos            ; returns address or word BX
  0010                      92     mon4    equ     xdos            ; returns pointer in BX and ES
                            93
0050                        94             org     50h             ; reserve patch area
0050 434F5059524947         95             db      'COPYRIGHT 1982, '
     485420313938322
     2C20
0060 444947495441414C       96             db      'DIGITAL RESEARCH'
     20524553454152
```

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```
LOC  OBJ                  LINE     SOURCE

     4348
                           97
0070                       98             org     70h             ; reserve patch area
0070 303130323832          99             db      '010282'        ; version date day-month-year
0076 3131                  100            db      '11'            ; current product version
0078 3030                  101            db      '00'            ; patch version
007A 363534333231          102            db      '654321'        ; for serial number
                           103
---                        104    code    ends
                           105    end
```

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XREF SYMBOL TABLE LISTING

```
NAME        TYPE     VALUE  ATTRIBUTES, XREFS

??SEG . . . SEGMENT         SIZE=0000H PARA PUBLIC
BUFF. . . . V BYTE   0080H  DATS PUBLIC  48# 49 50 58
BUFFA . . . V BYTE   0080H  DATS PUBLIC  50# 58
CGROUP. . . GROUP           CODE   12# 14
CMDRV . . . V BYTE   0050H  DATS PUBLIC  28# 55
CODE. . . . SEGMENT         SIZE=0080H PARA PUBLIC 'CODE'  12# 63 104
CPU . . . . NUMBER   0001H   PUBLIC  52# 58
CR. . . . . V BYTE   007CH  DATS PUBLIC  43# 57
DATS. . . . SEGMENT         SIZE=0100H PARA PUBLIC 'DATA'  11# 2? 60
DGROUP. . . GROUP           DATS STACK   11# 14 14
DOLLA . . . V BYTE   006DH  DATS PUBLIC  41# 57
FCB . . . . V BYTE   005CH  DATS PUBLIC  35# 36 37 38 39 56
FCB16 . . . V BYTE   006CH  DATS PUBLIC  40# 56
FCBA. . . . V BYTE   005CH  DATS PUBLIC  36# 56
IFCB. . . . V BYTE   005CH  DATS PUBLIC  38# 56
IFCBA . . . V BYTE   005CH  DATS PUBLIC  39# 56
LEN0. . . . V BYTE   0053H  DATS PUBLIC  30# 55
LEN1. . . . V BYTE   0056H  DATS PUBLIC  32# 55
MAXB. . . . V WORD   0006H  DATS PUBLIC  24# 25 54
MEMSIZ. . . V WORD   0006H  DATS PUBLIC  25# 54
MON1. . . . L NEAR   0010H  CODE PUBLIC  64 89#
MON2. . . . L NEAR   0010H  CODE PUBLIC  64 90#
MON3. . . . L NEAR   0010H  CODE PUBLIC  64 91#
MON4. . . . L NEAR   0010H  CODE PUBLIC  64 92#
PARMA . . . V BYTE   006EH  DATS PUBLIC  42# 57
PASS0 . . . V WORD   0051H  DATS PUBLIC  29# 55
PASS1 . . . V WORD   0054H  DATS PUBLIC  31# 55
PLM . . . . L NEAR   0000H  EXTRN  65# 76
RD. . . . . V BYTE   007FH  DATS PUBLIC  46# 47 57
RR. . . . . V WORD   0070H  DATS PUBLIC  44# 45 57
RRECA . . . V WORD   007DH  DATS PUBLIC  45# 57
RRECD . . . V BYTE   007FH  DATS PUBLIC  47# 57
SFCB. . . . V BYTE   005CH  DATS PUBLIC  37# 56
STACK . . . SEGMENT         SIZE=0000H WORD  STACK 'STACK'
STACK_BASE. V BYTE   0000H  STACK  17# 73
TBUFF . . . V BYTE   0080H  DATS PUBLIC  49# 58
XDOS. . . . L NEAR   0010H  CODE PUBLIC  64 79# 87 89 90 91 92
```

ASSEMBLY COMPLETE, NO ERRORS FOUND

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```
ISIS-II MCS-86 MACRO ASSEMBLER V2.1 ASSEMBLY OF MODULE SCD86B
OBJECT MODULE PLACED IN :F0:SCD86B.OBJ
ASSEMBLER INVOKED BY:  :F0: SCD86B.A86 DEBUG XREF


LOC  OBJ                  LINE     SOURCE

                             1     ;
                             2     ;       CP/M-86  /  MP/M-86   Interface Routine
                             3     ;
                             4     ;       Calls PLM procedure
                             5     ;       Interface for PLM-86 with separate code and data
                             6     ;       Standard patch area, date, version & serial no. location
                             7     ;       Code org'd at 0
                             8     ;       February 1, 1982
                             9
                            10
                            11     dgroup  group   dats,stack
                            12     cgroup  group   code
                            13
                            14     assume  cs:cgroup, ds:dgroup, ss:dgroup
                            15
----                        16     stack   segment word stack 'STACK'
0000                        17     stack_base      label byte
----                        18     stack   ends
                            19
----                        20     dats     segment para public 'DATA'     ;CP/M page 0 - LOC86'd at 0H
                            21
                            22     ;       Memory size
0006                        23             org     6
0006 ????                   24     maxb    dw      ?
  0006                      25     memsiz  equ     maxb
                            26     ;       MP/M-86 only
0050                        27             org     50h
0050 ??                     28     cmdrv   db      ?
0051 ????                   29     pass0   dw      ?
0053 ??                     30     len0    db      ?
0054 ????                   31     pass1   dw      ?
0056 ??                     32     len1    db      ?
                            33     ;       Default FCBs & buffer
005C                        34             org     5ch
005C (16                    35     fcb     db      16 dup (?)
     ??
     )
  005C                      36     fcba    equ     fcb
  005C                      37     sfcb    equ     fcb
  005C                      38     ifcb    equ     fcb
  005C                      39     ifcba   equ     fcb
006C ??                     40     fcb16   db      ?
006D ??                     41     dolla   db      ?
006E (14                    42     parma   db      14 dup (?)
     ??
     )
007C ??                     43     cr      db      ?
007D ????                   44     rr      dw      ?
  007D                      45     rreca   equ     rr
007F ??                     46     ro      db      ?
```

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```
LOC  OBJ                  LINE     SOURCE

  007F                      47     rreco   equ     ro
0080 (128                   48     buff    db      128 dup (?)
    ??
    )
  0080                      49     tbuff   equ     buff
  0080                      50     buffa   equ     buff
                            51     ;       Cpu type
  0001                      52     cpu     equ     1       ; 0 = 8080, 1 = 8086/88, 2 = 68000
                            53
                            54             public  maxb,memsiz
                            55             public  cmdrv,pass0,len0,pass1,len1
                            56             public  fcb,fcba,sfcb,ifcb,ifcba,fcb16
                            57             public  cr,rr,rreca,ro,rreco,dolla,parma
                            58             public  buff,tbuff,buffa, cpu
                            59
----                        60     dats ends
                            61
                            62
----                        63     code    segment public  'CODE'
                            64     public  xdos,mon1,mon2,mon3,mon4
                            65     extrn   plm:near
                            66
0000 9C                     67             pushf
0001 58                     68             pop     ax
0002 FA                     69             cli
0003 8CD9                   70             mov     cx,ds
0005 8ED1                   71             mov     ss,cx
0007 8D260000         R     72             lea     sp,stack_base
000B 50                     73             push    ax
000C 9D                     74             popf
000D E80000           E     75             call    plm
0010 2BC9                   76             sub     cx,cx
0012 8BD1                   77             mov     dx,cx
0014 CDE0                   78             int     224
                            79
0016                        80     xdos    proc
0016 55                     81             push    bp
0017 8BEC                   82             mov     bp,sp
0019 8B5604                 83             mov     dx,[bp+4]
001C 8B4E06                 84             mov     cx,[bp+6]
001F CDE0                   85             int     224
0021 5D                     86             pop     bp
0022 C20400                 87             ret     4
                            88     xdos    endp
                            89
  0016                      90     mon1    equ     xdos            ; no returned value
  0016                      91     mon2    equ     xdos            ; returns byte in AL
  0016                      92     mon3    equ     xdos            ; returns address or word BX
  0016                      93     mon4    equ     xdos            ; returns pointer in BX and ES
                            94
                            95
0050                        96             org     50h             ; reserve patch area
0050 434F5059524947         97             db      'COPYRIGHT 1982, '
     48542031393832
     2C20
```

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```
LOC  OBJ                  LINE     SOURCE

0060 4449474954414C         98            db      'DIGITAL RESEARCH'
     20524553454152
     4348
                            99
0070                        100           org     70h             ; reserve patch area
0070 303130323832           101           db      '010282'        ; version date day-month-year
0076 3131                   102           db      '11'            ; current product version
0078 3030                   103           db      '00'            ; patch version
007A 363534333231           104           db      '654321'        ; for serial number
                            105
----                        106     code  ends
                            107     end
```

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XREF SYMBOL TABLE LISTING

```
NAME        TYPE     VALUE  ATTRIBUTES, XREFS

??SEG . . . SEGMENT          SIZE=0000H PARA PUBLIC
BUFF. . . . V BYTE   0080H   DATS PUBLIC  48# 49 50 58
BUFFA . . . V BYTE   0080H   DATS PUBLIC  50# 58
CGROUP. . . GROUP            CODE   12# 14
CNDRV . . . V BYTE   0050H   DATS PUBLIC  28# 55
CODE. . . . SEGMENT          SIZE=0080H PARA PUBLIC 'CODE'  12# 63 106
CPU . . . . NUMBER   0001H    PUBLIC  52# 58
CR. . . . . V BYTE   007CH   DATS PUBLIC  43# 57
DATS. . . . SEGMENT          SIZE=0100H PARA PUBLIC 'DATA'  11# 20 60
DGROUP. . . GROUP            DATS STACK   11# 14 14
DOLLA . . . V BYTE   006DH   DATS PUBLIC  41# 57
FCB . . . . V BYTE   005CH   DATS PUBLIC  35# 36 37 38 39 56
FCB16 . . . V BYTE   006CH   DATS PUBLIC  40# 56
FCBA. . . . V BYTE   005CH   DATS PUBLIC  36# 56
IFCB. . . . V BYTE   005CH   DATS PUBLIC  38# 56
IFCBA . . . V BYTE   005CH   DATS PUBLIC  39# 56
LEN0. . . . V BYTE   0053H   DATS PUBLIC  30# 55
LEN1. . . . V BYTE   0058H   DATS PUBLIC  32# 55
MAXB. . . . V WORD   0006H   DATS PUBLIC  24# 25 54
MEMSIZ. . . V WORD   0003H   DATS PUBLIC  25# 54
MON1. . . . L NEAR   0016H   CODE PUBLIC  64 90#
MON2. . . . L NEAR   0016H   CODE PUBLIC  64 91#
MON3. . . . L NEAR   0016H   CODE PUBLIC  64 92#
MON4. . . . L NEAR   0016H   CODE PUBLIC  64 93#
PARMA . . . V BYTE   006EH   DATS PUBLIC  42# 57
PASS0 . . . V WORD   0051H   DATS PUBLIC  29# 55
PASS1 . . . V WORD   0054H   DATS PUBLIC  31# 55
PLM . . . . L NEAR   0000H   EXTRN  65# 75
RO. . . . . V BYTE   007FH   DATS PUBLIC  46# 47 57
RR. . . . . V WORD   007DH   DATS PUBLIC  44# 45 57
RRECA . . . V WORD   007DH   DATS PUBLIC  45# 57
RRECO . . . V BYTE   007FH   DATS PUBLIC  47# 57
SFCB. . . . V BYTE   005CH   DATS PUBLIC  37# 56
STACK . . . SEGMENT          SIZE=0000H WORD  STACK 'STACK'
STACK_BASE. V BYTE   0000H   STACK  17# 72
TBUFF . . . V BYTE   0080H   DATS PUBLIC  49# 58
XDOS. . . . L NEAR   0016H   CODE PUBLIC  64 80# 88 90 91 92 93


ASSEMBLY COMPLETE, NO ERRORS FOUND
```

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